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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/712,593 | 11/13/2003 | Khurram Muhammad | TI-34776 | 8991 |
| 23494 | 7590 | 02/22/2005 | EXAMINER | |
| TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265 | | | | LE, DINH THANH |
| | | ART UNIT | | PAPER NUMBER |
| | | 2816 | | |

DATE MAILED: 02/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|------------------------|------------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/712,593 | KHURRAM MUHAMMAD ET AL | |
| | Examiner | Art Unit | |
| | DINH T. LE | 2816 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-40 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: ____.

DETAILED ACTION

Specification

The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections

Claim Rejections - 35 USC § 112

Claims 1-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction or clarification is required.

In claim 1, it is unclear how the filters can be "configured" on line 2. The same is true for claim 21.

In claim 2, it is unclear what the "high order filter devoid of amplifiers" on line 3 is and how the filters and the means for direct sampling on line 1 can implement the high filter devoid of amplifiers and how this limitation is read on the preferred embodiment or seen on the drawings. The same is true for claims 6, 22 and 26.

In claim 3, it is unclear how the recitation "means . . . mixer" on lines 1-2 is read on the preferred embodiment. Insofar as understood, no such means is seen on the drawings. The same is true for claims 23 and 25.

In claim 7, it is unclear how the filters can create a unit-directional flow of information, signal or charge, what they are and where they come from. The same is true for claim 27.

In claim 8, the description of the present invention is incomplete because the capacitors and the capacitors banks are not connected to anything. Thus, the claimed capacitor and the capacitor banks may not perform the recited function. The same is true for claim 28.

In claim 9, it is unclear how the capacitor can be “reset” since no means for performing the resetting function is recited in the claim. The same is true for claim 29.

In claim 10, it is unclear how the recitation “comparator” and “negative feedback loop” is read on the preferred embodiment. Insofar as understood, no such loop and comparator are seen on the drawings. The same is true for claim 30.

In claim 12, it is unclear how the RF input signal can be minus a negative feedback signal since no means for performing the subtracting function is recited in the claim. The same is true for claim 32.

The remaining claims are dependent from the above claims and therefore also considered indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6-7, 21-23 and 26 –27 are rejected under 35 USC 102 (b) as being anticipated by Simon et al (GB 2230627).

Simon et al discloses in Figures 4-6 a second order filter comprising a cascaded a single pole IIR filters ((50, 50', 50'') to form a high order filter for generating an output signal (Yn) from an input signal (Un+3).

With regard to claim 3, means for direct sampling having multi-tap direct sampling mixer is read on the mixers (74).

Claims 1, 6, 21 and 26 are further rejected under 35 USC 102 (b) as being anticipated by Lee et al (US 5,732,002).

Lee et al discloses in Figure 1 a filter comprising a cascaded a single pole IIR filters (14, 16, 18, 20) to form a high order filter for generating an output signal (34) from an input signal (32).

Allowable Subject Matter

Claims 4-5, 8-20, 24-25 and 28-40 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The claims are allowed because the prior art of record does not show the filter comprising (i) at least one amplifier stage as combined in claim 4, (ii) the capacitors as combined in claim 8,(iii) the comparator and a negative feedback loop as combined in claim 10, and (iii) solely of switches and capacitors as combined in claim 16.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DINH T. LE whose telephone number is (571) 272-1745. The examiner can normally be reached on Monday-Friday (8AM-7PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TIMOTHY CALLAHAN can be reached at (571) 272-1740.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DINH LE
Primary Examiner